

Wine Cellar Building and Installations



Building a wine cellar is no easy task. Some people attempt to do the construction themselves while others choose to hire a contractor or wine cellar specialist to build out their room. Either way, it is extremely important to know the correct way a wine cellar should be built and how all of the components must be installed.

Building and installing are usually considered two different things.

Building the room includes preparing the walls, floor, and ceilings. It includes running your electrical and drain lines for your cooling and lighting, laying the floors and finishing the walls and ceilings. Installation of any overhead lighting is usually considered part of the build out as well. A reputable contractor and electrician should be used for this part of your cellar construction. Using a contractor that says he has built wine cellars before does not guarantee that you will get a room constructed correctly. This is why you also need to be educated on how a wine cellar should be built. Make sure your contractor builds your room to YOUR specifications.

Installation, on the other hand is installing the products needed to complete your room. Installing the cooling unit or climate control system, installing the racks and installing a proper wine cellar door are all part of this process. Your contractor can install the door and wine racks or you can have an experienced wine rack installer help you with this process. With an experienced installer, you know that the racks will be assembled correctly. The cooling unit, if a split system, must be installed by a licensed HVAC contractor. If you are using a self-contained system, your contractor can usually install this. Many other things can also be included in the build out or installation phases such as adding rock walls, murals, led ribbon lights and more. Depending on what you are installing, experts in each area can be hired to do various types of installations.

As you can see, building a wine room, wine cellar, or wine closet is not as simple as some might think. Throughout this writing, we will strive to educate you on each aspect of building a wine cellar.

Constructing the Walls, Floor, And Ceiling of your Wine Cellar



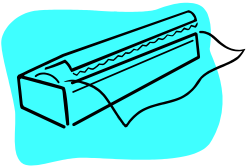
Preparing your room to be a climate controlled wine cellar is extremely important. If a room is not prepared properly, you CANNOT cool the room. Without the proper vapor barrier and insulation surrounding your room with a tight seal, if a cooling unit is installed, you run a high risk of mold and mildew forming inside the wall cavities and even the possibility that your studs or joists could swell or warp. Major home damage could occur. DO NOT INSTALL A COOLING SYSTEM IF YOU HAVE NOT PREPARED YOUR WALLS, FLOOR, AND CEILING CORRECTLY!

Framework



Build your walls using 2 X 4 or 2 X 6 inch studs and ceiling joists following the guidelines of local and state codes in your area. The thicker the walls the more insulation you can fit in. Try to use 6" studs on all exterior walls, if possible.

Vapor Barrier



All walls and ceilings must be sealed with a vapor barrier on the "warm" side of the walls. This means that in new construction, you can wrap the outside of the studs with your vapor barrier before attaching the outside wall boards. On a room that is being remodeled, you will need to begin with the bare studs showing and from the inside, wrap the vapor barrier over each stud and down into the stud cavity and back up over the next stud. We recommend a 6 or 8 mil plastic sheeting.

Insulation



Insulation is required when adding a climate control system. You will want the most insulation you can use for the thickness of your walls. Usually, R-13 or R-15 insulation can fit into a 2 X 4 wall while an R-19 might fit in a 2 X 6 wall. Do not try to pack in more insulation than what is supposed to fit. It will not make the insulation work any better. All cracks should be filled with expanding foam.

A minimum of R-13 insulation should be used on any interior walls and a minimum of R-19 should be used on any exterior walls. R-19 to R-30 is recommended for the ceiling. Standard fiberglass or rigid foam insulation is normally used in cellar construction. Blown in insulation is not recommended as it can settle with time. It is very important that all walls and ceilings be insulated to keep the cellar temperature as even as possible during the summer and winter months.

Foam insulation

High Density CLOSED cell foam can also be used in place of the plastic sheeting vapor barrier and other insulation. The closed cell foam acts as a vapor barrier and actually can supply more insulation in the same amount of space as other insulations might. The closed cell foam will cost more to purchase and have installed, but it will save you money in the long run due to the much better insulating factors. You will pay for the product once but save on your electric forever. If you are using foam insulation, you will need to run any electrical through pvc piping or similar tubing before the insulation is installed.

Floors



If your floor is on a concrete slab, you can get by with only adding a vapor barrier before you add your flooring. For concrete, we recommend a product called Bostick's MVP4. This product goes onto the concrete with a trowel. Once dried, your flooring can be applied. This product can usually be found at your local hardware store.

If your floor is above ground, we recommend that you prepare the floor just as you would your walls and ceiling. Add wood studs with a vapor barrier and insulation. Then add at least a ½" plywood base before you add your flooring.

Floor Coverings



Many things can be used to cover your floors. Slate, marble or vinyl tiles, or cork floating floor are some options. Hardwood floors can sometimes warp in the higher humidity of the cellar UNLESS you are using a reclaimed wine barrel style of floor. The wood from the wine barrels which has previously held a liquid, has expanded and contracted during its former use. Therefore, it holds up well in the wine cellar conditions. The reclaimed wine barrel flooring is available in a tongue & groove material and is laid just like a regular wood floor.

NEVER USE CARPET IN A WINE CELLAR. Carpet will cause mold and mildew to grow in the cool, damp climate conditions of a cellar.

As with the case of wall coverings, flooring is normally chosen to match the overall décor of the cellar. The flooring should be applied to a level surface.

Do not apply trim or moldings to the floor where the floor meets the wall anywhere your racks will be placed.

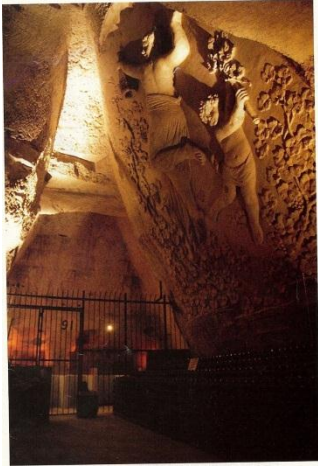
Wall and Ceiling Coverings



If you plan to attach metal wine racks to your walls, it is advised to add ½" plywood sheeting to your walls after installing your electrical and insulation. This will make anchoring the racks to the walls easier and create a better hold. Depending upon the types of racks you are installing, this plywood sheeting may or may not be a necessary step. If your racks have back stabilizers or rails horizontally across the back, you may be able to attach your racks to the walls at the studs.

The inside of your wine cellar walls and ceiling can be covered by any moisture resistant surface. Do not use regular drywall. We recommend using green board. If the wall is to be painted, use a latex paint. You can also use redwood or mahogany tongue & groove wall materials. Barn wood gives a rustic appearance. Any moisture resistant material can be used.

Never use cedar on your walls or for the racks of your wine cellar. This wood gives off an odor which can seep through the cork and taint your wine. Even what some call a non-aromatic cedar has a smell to it. Stay away from this product anywhere in your wine cellar.



A new product offered by Wine Cellar Specialists in some parts of the country is a coating of stone. Limestone from France that is sprayed onto the wall surface and hand carved to look like the stone of your choosing. This will give you the feel of a real underground cave.

No baseboards or shoe moldings should be attached where your racks will meet the walls. Moldings will be installed on your racks once they are in the room. Any baseboards on the wall before the racks are installed will prevent a close fit for the racks.

Be sure any whole house HVAC vents are removed. Existing HVAC should be permanently sealed. Contact your HVAC contractor for advice.

Installing the Special Features

Lighting



In most instances a recessed ceiling light is used in the ceiling of the cellar. This type of lighting will not get in the way or interfere with the bottle storage in the racks. When using recessed lighting it is important to use "air lock recessed can lights. Check to be sure they are IC rated (insulation contact) so that the vapor barrier and insulation can be wrapped around the can.

If your room is large enough, you can also use a hanging light or track lighting. Again, wherever the electrical components are in the ceiling, be sure the integrity of the vapor barrier is not compromised.

Any ceiling lighting must be a minimum of 16" at the edge of the light to the wall if you are using single deep wine racks and 29 1/2" at the edge of the light for double deep racking.

Whatever lighting you choose, try to stick to LED bulbs or lights that accept such bulbs. LED lights produce the least heat and are recommended for all wine cellar. Your lights can be put onto dimmer switches to allow the lighting to be low. Also popular are various display lights to accent different areas of the cellar. LED low wattage flex ribbon lighting is commonly used above any rack display rows. Choose a waterproof variety. The “warm white” color looks the best in a residential wine cellar. A bright white color would be appropriate in a commercial location where there are already bright lights outside the cellar.

Wine Cellar Doors



Note that this section is titled “Wine Cellar Doors” not just “Doors”. Wine cellar doors are specifically made for a wine cellar. They should be solid wood and/or insulated. A door that is LVL constructed is the best when looking for a wood door. They are made to withstand the higher humidity levels of a wine cellar and will be less likely to warp in these conditions. Wine cellar doors should be exterior grade and at least 1 ¾” thick. They should include good quality weather stripping for an air tight seal and must have a method of keeping the air from escaping below the door. The bottom of the door is the most common place that air will escape from a wine cellar. You have gone to the trouble to seal your walls, floor, and ceiling. Be sure to add an automatic door bottom to your door.

When installing your door, it is advisable to use a can of closed cell slow activating foam to fill the gap between the jamb and the rough opening before installing your case moldings.

Any glass in your door must be a dual pane tempered glass with a minimum of ½” gap. This will give you the most insulation and help to prevent condensation from forming.

Iron doors can also be used on wine cellars. Be sure that if an iron door is used that it includes a high density foam insulation inside the door, dual pane glass and weather stripping.

Climate Control Systems or Cooling Units



Climate control systems, cooling units, refrigeration systems, chiller, whatever your terminology, the system you choose to cool your wine cellar is of utmost importance. It is best to decide which system will be installed in

your wine cellar at the beginning of your project so that the correct electrical lines and drain lines can be run during the construction process. If installing a split system, you will also want to run your copper lines before the walls and ceiling are built. Use a wine cellar specialist who knows about the many types of systems on the market for advice and with help in ordering your unit.

Whether you choose a self-contained through the wall unit, a ducted system, or a split system, you will need a drain line running from the evaporator to a drain or container. Every unit will need at least one dedicated electrical outlet... sometimes two. On a split system, the dedicated outlet must be wherever the compressor is located. This could be in a large mechanical room, a garage, or even outdoors.

Most self-contained systems are meant to go through the wall and vent into another heat and air conditioned space next to the wine cellar. This space should be at least 2X the size of the wine cellar. There are a couple of systems that will work going through the wall to the outdoors. If you intend to vent to the outdoors you must use a unit that is specifically designed for the extreme outdoor weather conditions.

Some self-contained systems can have front or rear duct kits added. This will allow you to put the unit in a smaller space next to the cellar and duct the air to and from the cellar and to and from another room with a larger air flow capacity. No matter where you put a self-contained unit, you must have access to it. You cannot build it into a wall space and seal the wall. Just like your home ac unit, your wine cellar refrigeration device will need periodic maintenance. Most units must be placed in an area that will not be exposed to extreme heat.

If you choose to use a split system, you can choose from a ductless split system or a ducted split system. A ductless split system has an evaporator coil that is placed on the wall or ceiling, depending on the style that works for your cellar, inside the cellar. It is connected via 2 copper lines to the compressor that can sit either in another large room inside the home (at least 2X the size of the cellar) or outdoors.

With a ducted split system, the evaporator coil is placed indoors in another room and is ducted into the cellar, usually through the ceiling. Both an intake and return duct are necessary. The evaporator is then connected to the compressor via two copper lines. Again, the compressor can sit in a large indoor room such as a mechanical room or garage or it can sit outdoors.

Cooling units are varied by manufacturers and what each type of unit can do. Some have optional humidifiers that can be added. Most help to control the humidity in a room but don't add more. Rarely is added humidity needed unless you live in the middle of the desert or high in the mountains in a VERY dry climate. Some have multiple fan speeds while others are bare bones with no extras at all. If your compressor will sit outdoors and the temperature reaches 40 degrees or colder, be sure to check into adding a low ambient kit. This will keep the liquids flowing properly during the cold weather.

When choosing a cooling unit, don't necessarily look for price only. Find a unit that works for what you need it to do. Each wine cellar is different. Many factors determine the size of the unit you will need. Many manufacturers simply tell you the cubic feet that a unit is supposed to cool. What they don't always tell you is that the R-value of your insulation, the type of door you are using, if your walls are interior or exterior, and many other factors have a bearing on the BTUs needed to cool your room. While one cellar that is 500 cubic feet may take one unit another cellar of exactly the same size may need a different size.

Choosing a unit to cool your wine room is where you should consult a Wine Cellar Specialist. They can do a heat load calculation to determine the exact size of unit that you will need. They also have the knowledge and years of experience with many types of cooling units. It would take you hundreds of hours to learn about every cooling unit on the market today. A wine cellar specialist is knowledgeable about all of the best units available... and what to avoid.

Wine Racks



Deciding on the style of wine racks you want can be a daunting experience. Just in the wine rack kit category there are several different styles. Traditional, stackable, double deep. Each manufacturer makes their racks slightly different. Therefore you must choose wisely. AND we are just talking about wood wine racks. There are also metal wine rack kits.

For specific details on what to look for when choosing your racks, follow the link to our blog and an article specially written to offer you more detailed help. [BLOG ARTICLE](#)

The most common types of wine racks are wooden Wine Rack Kits, wood custom racks, modular racks and metal racks. At Wine Cellar Specialists we offer wood wine rack kits in Traditional, Stackable, Double Deep and a Commercial line.

Modular racks are offered in the Kessick Estate Design Series and the Kessick Contemporary Series. Vintage View metal wine racks are also a great choice. Wall mounted, floor to ceiling mounted, or free standing metal racks are available as well as the new tubular style. You can view all of these racks on our [Wine Racks](#) page.

Custom wine racks are just that... custom. They are designed and made specifically for you and your wine cellar. We can create nearly anything you or the design team here at Wine Cellar Specialists can dream up for your room. You can view a few of our past projects in our [Wine Cellar Gallery](#).

Wine Rack Installation



How easy or difficult your wine rack installation will be is determined by the type of racks you choose.

Traditional Wood Racks

I have gathered together a few tips which are not included in the assembly instructions for our wood traditional, stackable, double deep kits and custom racks. If you are not assembling the racks yourself, pass this information on to your installer.

1. When taking off the shrink wrap from the pallet that your boxes arrive on, look for a yellow envelope. This will contain your instructions and hardware for assembly.
2. Do not open all of the boxes at once. You do not want to mix up the parts from one rack to another. Sort the boxes. They are all labeled by the elevation on your drawing... A, B, C, etc.
3. If you have a curved corner rack... begin with it and work out along the wall. As each rack is assembled, set it in place but do not attach it to the wall yet.
4. If you have an upper section and a lower section, be sure your lower section is level before adding the upper section.
5. Wait until all racks are in place before attaching the front stabilizers. This way you will be sure to place them so that each one is level with the next rack.
6. When attaching your racks to the wall, use a stud finder to shoot a nail from your nail gun through the back stabilizer into the wall stud. Be careful not to shoot nails near any electrical lines or drain lines.
7. If you find a long piece that is not molding but is somewhat 3 sided... this is your corner filler. (Only included if you have square corners.) This will need to be attached as you are putting your racks in place.
8. If you find a long piece that is L shaped... this is your light valance.... If there is a light valance in your design. This goes up and behind the front of the display row. It will need to be attached to your rack while assembling it... before you put the rack in place.
9. If you have the basic moldings with your design, the 1 ½" molding is the base or Toe Kick molding. The 2 ¼" molding is for the crown. These will need to be cut to fit and the corners mitered at the correct angle. If you have a 2 step crown in your design, there will be 2 parts to your crown molding.
10. You will have a wider piece that has dados cut into it that will fit above the display row... if your racking has display rows.
11. You will have another long piece of wood that will need to be cut to fit that goes at the bottom of the display row. It does not have dados cut into it.

Metal Wine Racks

Metal Vintage View wine racks come with their own assembly and/or installation instructions. Specific instructions will Depend on which type of metal wine racks you have chosen. Instructions are different for wall mounted racks, floor to ceiling mounted racks, and free standing racks. The type of screws to use will also depend upon the wall material that you are mounting the racks onto.

Kessick Modular Wine Racks

The Kessik Series Estate and Contemporary Modular wine racks are the only wine racks we have that come Pre-Assembled. This is a great feature. The only assembly needed will be to unpack the racks, move them into place. Attach them to the walls and attach your crown and base moldings. The crown and base moldings will need to be cut to fit and corners mitered. Even the lighting option, if ordered, is pre-installed.

Finding a Contractor or Wine Rack Installer for your Wine Cellar Project

Finding a contractor to build you a wine cellar in your location is not always an easy task. There are contractors out there that will tell you that they know how to build wine cellars. Many of these contractors may have built wine cellars in the past...but did they do it correctly?

I have run across several situations where a contractor has put the vapor barrier on the wrong side of the insulation. Another insisted that the room needs "air flow" from under the door. A contractor I spoke to thought he could vent a through the wall unit into a small closet...with no rear duct. All of these people said they had built wine cellar before. All of these wine cellars built this way will have future problems.

Applying the vapor barrier wrong can result in mold and mildew and warping of your walls and ceiling. A gap under your door, allowing air flow will create your cooling unit to run much more and will run up your electric bill unnecessarily, as well as wear out the unit sooner.

Venting into a small closet will not give you enough fresh air for the unit to work properly. The closet will build up heat and your cellar will not cool to the correct temperature. This could also result in your cooling unit failing. Improper installation will be the cause and your warranty will not be valid.

The best way to find a contractor... Or to use your own contractor... is to consult with a Wine Cellar Specialist. In many parts of the country, we can recommend contractors who have worked closely with us in the past. In some areas, we can do the build out for you ourselves. If you have a contractor that you have worked with before and are happy with, we are more than willing to give him guidance during your wine cellar build to assure that he is creating your room the way it must be built.

Reading this simple guide yourself will also give you a much better insight on what must be done.



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